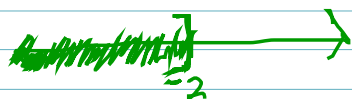


Meth 0362

# Practice Test 4

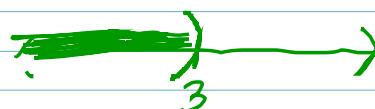
(Graph on number line, Then write in interval notation)

1.  $x \leq -2$



$(-\infty, -2]$

2.  $x < 3$



$(-\infty, 3)$

3.  $x \geq -4$



$[-4, \infty)$

4.  $10(2x-1) \leq 5(3x-4)$

$$\begin{array}{r} 20x - 10 \leq 15x - 20 \\ -15x \quad -15x \end{array}$$

$$5x - 10 \leq -20$$

$$\begin{array}{r} +10 \quad +10 \\ 5x \leq -10 \\ \frac{5x}{5} \leq \frac{-10}{5} \\ \boxed{x \leq -2} \end{array}$$



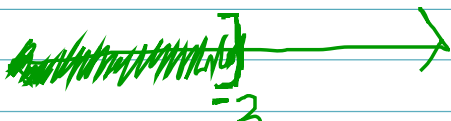
$(-\infty, -2]$

Math 0362

# Practice Test 4

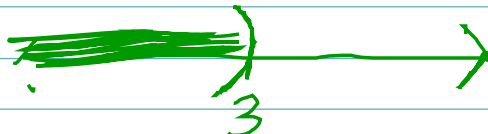
Graph on number line, Then write in interval notation

1.  $x \leq -2$



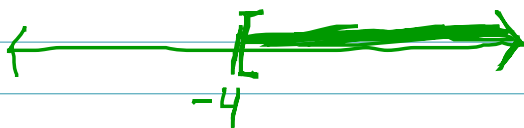
$(-\infty, -2]$

2.  $x \leq 3$



$(-\infty, 3]$

3.  $x \geq -4$



$[-4, \infty)$

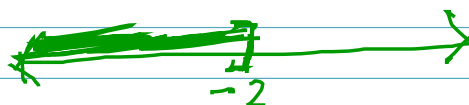
4.  $10(2x-1) \leq 5(3x-4)$

$$\begin{array}{r} 20x - 10 \leq 15x - 20 \\ -15x \quad -15x \end{array}$$

$$5x - 10 \leq -20$$

$$\begin{array}{r} +10 \quad +10 \\ 5x \leq -10 \\ \hline 5 \quad 5 \end{array}$$

$x \leq -2$



$(-\infty, -2]$

Solve inequality, Write in interval notation

5.

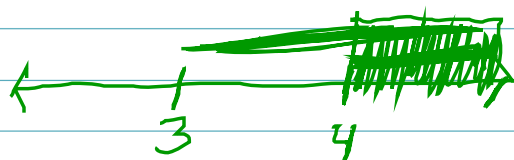
$$\frac{-5x \leq -20}{-5 \quad -5}$$

$$x \geq 4$$

AND  
overlap

$$\frac{x+5 > 8}{-5 \quad -5}$$

$$x > 3$$



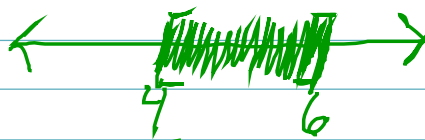
$$(4, \infty)$$

6.

$$\frac{4 \leq 2t - 4 \leq 8}{+4 \quad +4 \quad +4}$$

$$\frac{8 \leq 2t \leq 12}{2 \quad 2 \quad 2}$$

$$4 \leq t \leq 6$$



$$[4, 6]$$

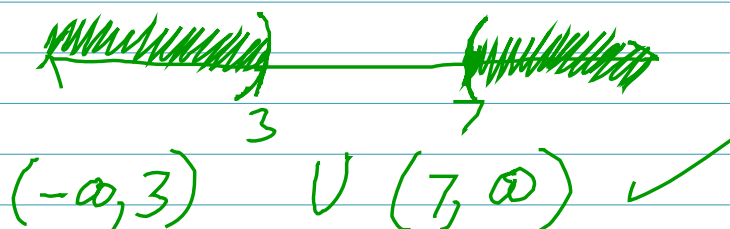
7.

$$\frac{6x - 4 < 14}{+4 \quad +4} \quad \text{OR} \quad \frac{-2x < -14}{-2 \quad -2}$$

$$\frac{6x < 18}{6 \quad 6}$$

$$x < 3$$

$$x > 7$$



$$(-\infty, 3)$$

$$\cup (7, \infty)$$

✓

# Solve absolute value equations

8.

$$|2x-3|=5$$

As Is      Opposite

$$\begin{array}{l} 2x-3=5 \\ +3 \quad +3 \\ \hline 2x=8 \\ \frac{2x}{2}=\frac{8}{2} \\ \boxed{x=4} \end{array} \quad \begin{array}{l} 2x-3=-5 \\ +3 \quad +3 \\ \hline 2x=-2 \\ \frac{2x}{2}=\frac{-2}{2} \\ \boxed{x=-1} \end{array}$$

9.

$$|x-5|+4=7$$

$-4 \quad -4$

$$|x-5|=3$$

As Is      Opposite

$$\begin{array}{l} x-5=3 \\ +5 \quad +5 \\ \hline \boxed{x=8} \end{array} \quad \begin{array}{l} x-5=-3 \\ +5 \quad +5 \\ \hline \boxed{x=2} \end{array}$$

10.

$$|x-3|+8=9$$

$-8 \quad -8$

$$|x-3|=1$$

As Is      Opposite

$$\begin{array}{l} x-3=1 \\ +3 \quad +3 \\ \hline \boxed{x=4} \end{array} \quad \begin{array}{l} x-3=-1 \\ +3 \quad +3 \\ \hline \boxed{x=-2} \end{array}$$

11.

$$|9x-9|=|2x+19|$$

As Is      Opposite

$$\begin{array}{l} 9x-9=2x+19 \\ -2x \quad -2x \\ \hline 7x-9=19 \\ +9 \quad +9 \\ \hline 7x=28 \\ \frac{7x}{7}=\frac{28}{7} \\ \boxed{x=4} \end{array} \quad \begin{array}{l} 9x-9=-2x-19 \\ +2x \quad +2x \\ \hline 11x-9=-19 \\ +9 \quad +9 \\ \hline 11x=-10 \\ \frac{11x}{11}=\frac{-10}{11} \\ \boxed{x=-\frac{10}{11}} \end{array}$$

Solve inequality, Graph and write in interval notation

12.  $|2x+1|+1 < 8$

$$\begin{array}{l|l} \text{As Is} \swarrow & \searrow \text{opposite} \\ \hline 2x+1 < 7 & 2x+1 > -7 \\ \hline -1 & -1 \\ \hline 2x < 6 & 2x > -8 \\ \hline \frac{2x}{2} & \frac{2x}{2} \\ \hline x < 3 & x > -4 \end{array}$$

$(-4, 3)$

13.  $|6x+3|+5 > 26$

$$\begin{array}{l|l} \text{As Is} \swarrow & \searrow \text{opposite} \\ \hline 6x+3 > 21 & 6x+3 < -21 \\ \hline -3 & -3 \\ \hline 6x > 18 & 6x < -24 \\ \hline \frac{6x}{6} & \frac{6x}{6} \\ \hline x > 3 & x < -4 \end{array}$$

$(-\infty, -4) \cup (3, \infty)$

14. Determine if  $(4, -3)$  is a solution to  $x - y > 5$

$$\begin{array}{l} 4 - (-3) > 5 \\ 7 > 5 \\ \text{Yes} \end{array}$$

15. Graph

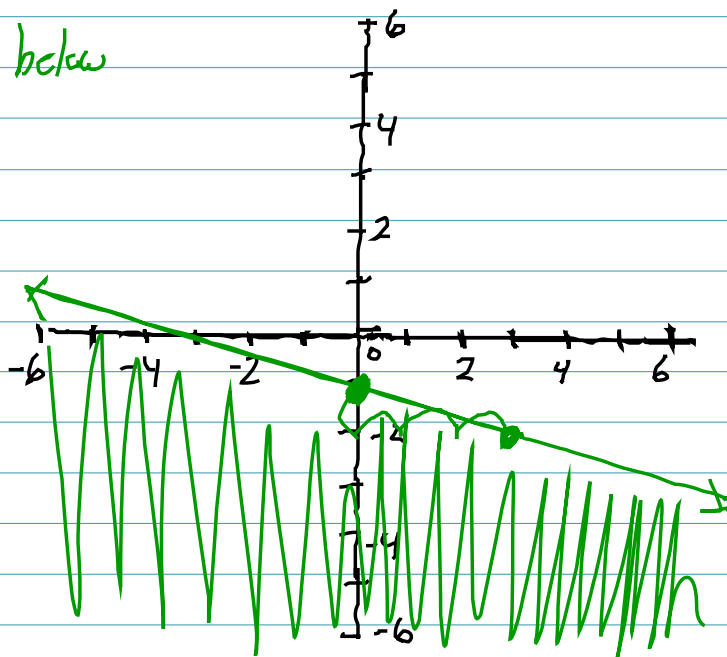
$x + 3y \leq -3$   
shaded below

$$\frac{3y}{3} \leq \frac{-x-3}{3}$$

$$y \leq -\frac{1}{3}x - 1$$

slope =  $-\frac{1}{3}$  down 1 right 3

intercept = -1 (start)



16, Graph *shade below*

$$y \leq 2x - 3$$

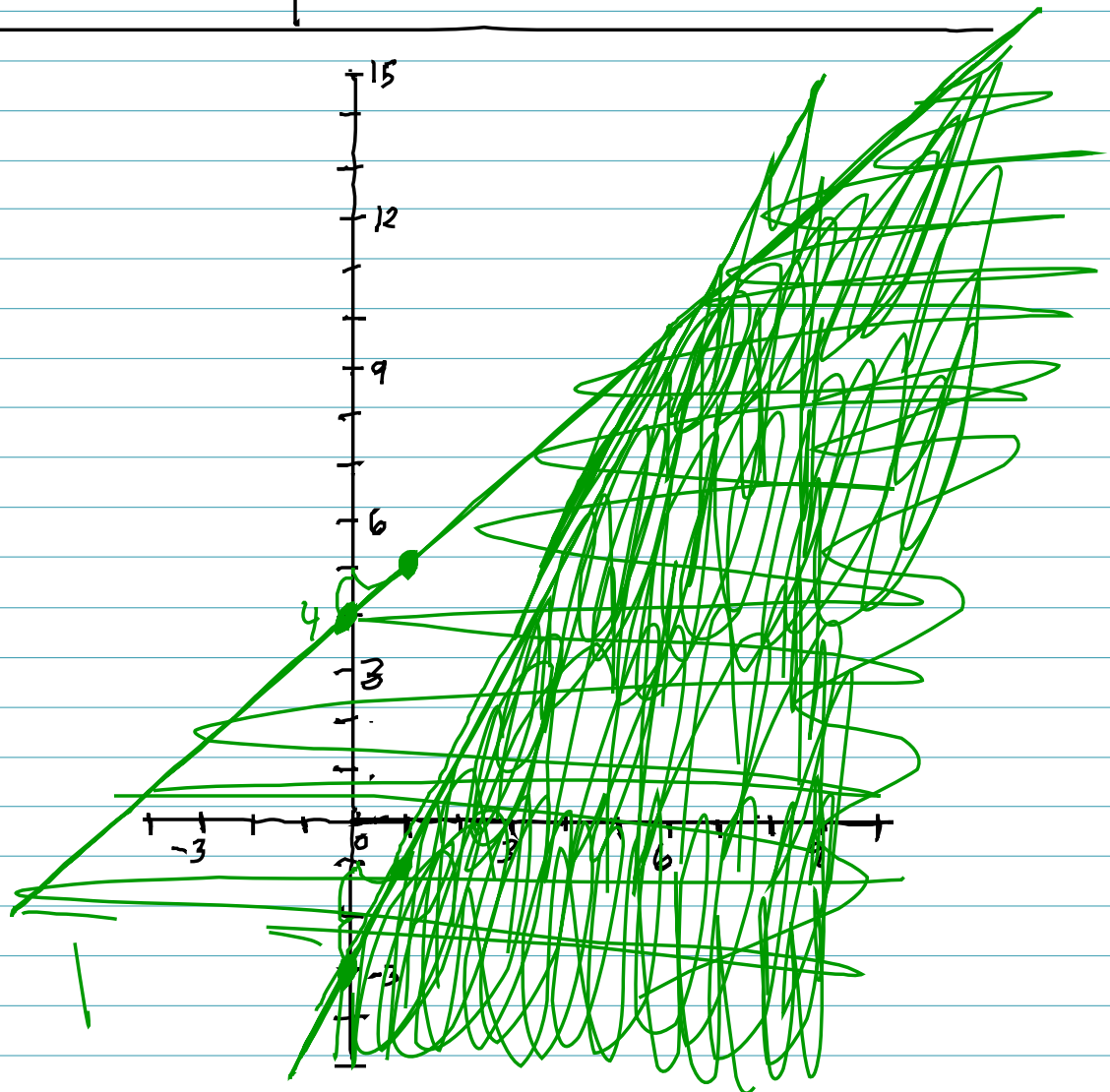
slope =  $\frac{2}{1}$   $\frac{2 \text{ up}}{1 \text{ Right}}$

y-intercept = -3  
start

$$y \leq x + 4$$

slope =  $\frac{1}{1}$   $\frac{1 \text{ up}}{1 \text{ Right}}$

y-intercept = 4



Simplify

17.

$$\sqrt[3]{y^{10}}$$

divide exponents

$$\frac{10}{2} = 5$$

$$y^5$$

18.

$$\sqrt[3]{64y^9}$$

$$4y^3$$

19.

$$-\sqrt{36}$$
  
$$-6$$

20.

$$\sqrt[3]{-27}$$

$$-3$$

21.

$$\sqrt[4]{-9}$$

may not take even root of a negative

No real answer

Use radical notation. Positive exponents only

22.

$$16^{\frac{1}{2}} \quad x^{\frac{1}{2}} = \sqrt{x}$$

$$16^{\frac{1}{2}} = \sqrt{16} = \boxed{4}$$

23.

$$-27^{\frac{1}{3}} \quad x^{\frac{1}{3}} = \sqrt[3]{x}$$

$$\sqrt[3]{-27} = \boxed{-3}$$

24

$$\frac{1}{x^{-4/7}}$$

$$x^{\frac{4}{7}}$$

25.

$$\sqrt[24]{x^6}$$

$$x^{\frac{6}{24}} = \boxed{x^{\frac{1}{4}}}$$